

REMARKS

The Office Action dated January 28, 2004 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1 and 8 have been amended to more particularly point out and distinctly claim the subject matter of the invention. No new matter has been added, and no new issues are raised which require further consideration or search. Claims 1-14 are respectfully submitted for consideration.

Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sayers (U.S. Patent No. 6,539,237 B1) in view of Thomas (U.S. Patent No. 6,421,339 B1), and in further view of Wallentin (U.S. Patent No. 6,233,222). The Office Action took the position that Sayers teaches all of the elements of the claimed invention, apart from "the gatekeeper connected to the gateway by a switch packet path" and "the transmitting of candidate list to gatekeeper for handover." The Office Action then relied on Thomas and Wallentin to cure the deficiencies of Sayers.

Applicants respectfully submit that the cited prior art fails to disclose or suggest the subject matter recited in the presently pending claims. Therefore, the rejection is respectfully traversed and reconsideration is respectfully requested for the following reasons.

Amended claim 1, upon which claims 2-7 are dependent, recites a cellular communications network comprising a plurality of gateways for controlling cells in the

cellular communications network. The gateways are arranged to receive RF information from at least one mobile station in the network. At least one gatekeeper may be connected to the gateways by a switched packet communication path. Each gateway includes means for generating a handover required indication for a call in which the gateway is engaged and packet generating means for generating a packet addressed to the gatekeeper. Control information comprises a candidate list of alternative cells to which the call could be transferred. The gatekeeper includes selection means for selecting one of the alternative cells in the candidate list and packet generating means for generating a packet for sending a handover request for handing over the call to one of the alternative cells.

An advantageous result, according to the claimed invention as recited in claim 1, is that when a handover is required, gateways do not make a decision as to which cell a call should be transferred. Instead, they send a candidate list to the gatekeeper and the gatekeeper utilizes selection means for selecting one of the alternative cells in the candidate list. The gatekeeper then generates a packet for sending a handover request to the selected cell. As described on page 17 of the specification, if the first target cell is unable to accept the handover then a signal is sent to the gatekeeper indicating its rejection of the handover request. The gatekeeper may then proceed to the next cell in the candidate list. As a result, further communication between the gatekeeper and the gateway is not required.

The cited prior art fails to disclose or suggest the elements of the claims, and therefore fails to provide the advantages discussed above.

Sayers discloses a communication system formed by a private network that includes a private wireless network. The communication system includes a public wireless network using a public wireless protocol, such as GSM, and includes public networks, such as PSTN, ISDN and the Internet, using a wired protocol, such as IP. The private network also includes a local area network (LAN) and the private network connects to the public networks using a wired packet protocol, such as IP. The public and private wireless networks operate with the same public wireless protocol, such as GSM, and the private wireless network additionally operates with a wired packet protocol, such as IP. The communication system permits users to operate freely in both public and private wireless networks using standard mobile stations while achieving high private network data rates. The communication system uses normal wireless handsets or other mobile or fixed stations without need for any modifications.

Thomas discloses a method and apparatus for configuring an H.323 compliant data packet network with a registering function whereby home based users are identified separate from visiting users having other networks as home bases. Thus, user location data may be retrieved and/or modified as those users roam to other H.323 compliant networks and register with a gatekeeper at that visited network. The registration of a visiting user with a visited gatekeeper includes the process of assigning a transient identity to the roaming user, obtaining confirmation from the home gatekeeper that

roaming is authorized and registering the roaming users present address and transient identity at the home site so that calls received at the home network can be directed to the user at the visited site. In column 2, lines 31-34, Thomas explains that while such an action would be comparable to roaming users in cellular phone technology, the differences in basic construction of the internet and the telephone system prevent any direct correlation in processes to accomplish such authorization and forwarding of communications.

Wallentin discloses a telecommunications network that has a target exchange (RNC 222₂) which determines a congestion condition in a region supervised by the target exchange, and which sends a congestion message to a source exchange (RNC 222₁). The source exchange controls at least some connections which utilize radio resources in the region supervised by the target exchange. The congestion message causes the source exchange to adjust at least one connection which it controls in the region supervised by the target exchange. In a first mode, the target exchange determines a selected connection to be adjusted in view of the congestion condition. In this first mode, the congestion message identifies the selected connection to be adjusted and further includes an adjustment value (e.g., power reduction value) for the selected connection to be adjusted. In a second mode, the congestion message includes an identification of a congested area (e.g., a cell) within the region supervised by the target exchange, as well as a severity value indicating a severity of the congestion in the congested area. The severity value can be indicative of a needed decrease in congestion in the congested area.

Applicants respectfully submit that Sayers fails to disclose several elements of the presently pending claims. As previously stated, Sayers discloses a communication system with a private network and a private wireless network. The Office Action admitted that Sayers does not disclose or suggest "a gatekeeper connected to the gateway by a switch packet path" and "transmitting of candidate list to gatekeeper for handover." According to figure 4 of Sayers, the private wireless network consists of a plurality of private base stations connected to a hub, which in turn is connected to a gatekeeper. The hub is also connected to a public network 43 via a gateway 42-2. Column 27, lines 50-67, describe a method for a handover from a serving private base station to a target private base station. That method is very different from the method claimed in the present invention. According to the method disclosed in Sayers, if it is decided that a handover is required then the address of a new base station is determined by sending a location request to the gatekeeper. The gatekeeper returns the address of the target base station in a location confirmation message. Once the serving base station knows the address of the target base station, it may forward a handover message requesting resources from the target base station. The target base station then responds with a handover acceptance message.

Therefore, in the method taught by Sayers, if a handover is refused by the target base station then the serving base station would have to send a new location request to the gatekeeper for the address of an alternative target base station. The claimed invention, however, solves this problem by sending a candidate list to the gatekeeper with a list of

alternative cells, and allowing the gatekeeper to select a cell and request the handover. Consequently, further communication between the gatekeeper and the gateway is not required.

Applicants respectfully submit that Sayers fails to teach several important elements of the currently pending claims. As acknowledged by the Office Action, Sayers does not disclose sending a candidate list for alternative cells from a gateway to a gatekeeper. Sayers also fails to disclose that a gatekeeper includes selection means for selecting one of the alternative cells in the candidate list. Moreover, the gatekeeper of Sayers fails to generate a packet for sending a handover request to one of the alternative cells.

The Office Action suggested that the private base station of Sayers performs the functions of the gatekeeper. Applicants respectfully submit that the base station does not possess the same functionality as the claimed invention, and therefore cannot be considered as corresponding to the gatekeeper recited in the pending claims.

The Office Action relies upon Thomas to allegedly cure one of the deficiencies in Sayers. It is acknowledged that Sayers fails to disclose that the gatekeeper and gateways are connected by a switched packet communication path, but the Office Action maintains that this element is taught by Thomas. Thomas simply discloses a gatekeeper 44 and gateways 24, 32, 26 connected via buses 36 and 16, R/GW 28 and 34, and a packet data network 30. Thomas does not disclose, however, a switched packet communication path between a gateway arranged to receive RF information from a mobile station and a

gatekeeper as defined by claim 1. Though the labels may be the same, the structure and function is completely different.

In any event, Thomas does not touch on the issues involved in performing a handover within a cellular communications network. Thomas relates to a method for configuring an H.323 compliant data packet network such that if users roam they may register with a gatekeeper at a visited network. Thomas does not disclose communication between mobile stations and a gateway that receives RF information.

Furthermore, Thomas teaches away from the claimed invention. Thomas discloses that its device has no direct correlation to roaming users in cellular phone technology. Thomas states in column 2, lines 31-34, "While such an action would be comparable to roaming users in cellular phone technology, the differences in basic construction of the internet and the telephone system prevent any direct correlation in processes to accomplish such authorization and forwarding of communications." Thomas does not relate to the issues involved in performing a handover within a cellular network. Therefore, a person skilled in the art would not refer to Thomas in relation to a method for implementing handovers in a network with mobile stations, nor would they be motivated to combine Sayers and Thomas.

The Office Action also relies upon Wallentin to cure the deficiencies in the combination of Sayers and Thomas with respect to claims 1-4. The Office Action took the position that Wallentin discloses "transmitting of candidate cell listing to gatekeeper for handover." Wallentin, however, fails to disclose this element nor does it discuss any

handover mechanism. As acknowledged in the Office Action, Wallentin relates to a connection identity list for use in controlling network congestion. The connection identity list is a list of existing call connections. For example, one such connection might be between a particular mobile station and a base station. This connection would be associated with an identification number, and a bit rate. The connection identity list does not correspond in any way to the candidate list of alternative cells as recited in claim 1 of the claimed invention. The candidate list of claim 1 does not list individual connections, but rather lists alternative cells to which the current call can be handed. In addition, Wallentin does not disclose transmitting the connection identity list. Instead, an adjustment message is transmitted from the RNC which has the effect of updating the bit rate field in the connection identity list. The list itself is not transmitted.

Since Wallentin does not disclose a method for implementing the handover of a call from one cell to another, as recited in claim 1, one skilled in the art would not refer to Wallentin for teachings related to handovers in networks with packet switched portions.

Sayers, Thomas, and Wallentin therefore do not teach or suggest a candidate list of alternative cells to which a call could be transferred. They do not, when viewed singly or in combination, disclose a gateway including packet generating means for generating a packet addressed to a gatekeeper which includes control information comprising the candidate list. Additionally, they do not teach a gatekeeper including selection means for selecting one of the alternative cells in the candidate list. For at least those reasons,

Sayers, Thomas and Wallentin, taken in combination or alone do not disclose or suggest every element of claim 1.

It is further submitted that claims 2-4 depend from claim 1 and thus should be allowed for at least their dependence on claim 1, and for the specific limitations recited therein.

Claims 5-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sayers in view of Thomas, and in further view of Hannula et al. (U.S. Patent No. 6,366,893 B2). The Office Action took the position that the combination of Sayers and Thomas discloses all of the elements of the claimed invention, with the exception of "the data defining network specific resources defines a GSM specific end system information."

Hannula discloses a method and apparatus for performing electronic payment transactions between terminal equipment (100) in a telecommunication network and the other transacting party. Hannula utilizes a payment service gateway (10) through which all the payment transactions of the terminal equipments in the telecommunication network are routed. The payment service gateway allows the parties of the payment transaction to support different electronic payment protocols and performs the required protocol conversions so as to provide an end-to-end transaction.

Hannula fails to cure the deficiencies of the primary references discussed above. Furthermore, claims 5-7 depend from claim 1 and are therefore allowable at least for the

same reasons that amended claim 1 is allowable. Thus, Sayers, Thomas and Hannula, taken in combination or alone, fail to render claims 5-7 obvious.

Claims 8-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sayers in view of Thomas, as applied to claim 1, and in further view of Hannula.

Amended claim 8, upon which claims 9-14 are dependent, recites a method of effecting handoff of a call in which at least one mobile station is engaged in a cellular communications network comprising a plurality of cells. The method includes the steps of receiving, formulating and determining. The receiving step receives from the mobile station a handoff required indication indicating that a handover is needed from a source gateway to a target gateway. The formulating step formulates at the source gateway a packet addressed to a source gatekeeper. The packet includes control information comprising a candidate list identifying possible alternative gateways. At the source gatekeeper, the determining step determines to which one of the target gateways within the candidate list a handoff request should be forwarded and formulates a packet for forwarding to the target gateway.

As discussed above, and acknowledged in the Office Action, Sayers does not disclose formulating a packet addressed to a gatekeeper including control information comprising a candidate list identifying possible alternative gateways. Nor does it disclose determining to which one of the target gateways within the candidate list a handover request should be forwarded and formulating the packet for forwarding to that gateway. Sayers does not teach that a gatekeeper includes means for generating a

handover request for handing over the call to one of the alternative cells. Moreover, amended claim 8 recites receiving from a mobile station a handoff required indication which indicates that handover is needed. This feature is not disclosed by Sayers. Instead, Sayers states in column 23, line 20 that the private base station performs the handover candidate calculations based on the measurement data being sent by the mobile station. It does not disclose that the mobile station decides if a handoff is required and then sends a handoff required indication to the source gateway.

As previously mentioned, neither Thomas nor Hannula serve to cure the deficiencies of Sayers discussed above. For at least those reasons, Sayers, Thomas and Hannula, taken in combination or alone, do not render amended claim 8 obvious. The cited prior art do not disclose or suggest each and every element of the claim.

It is further submitted that claims 9-14 depend from claim 8 and therefore should be allowed for at least their dependence on claim 8, and for the specific limitations recited therein.

Applicants respectfully submit that clear and important distinctions exist between the cited prior art and the claimed invention. Applicants further submit that these distinctions are sufficient to render the presently pending claims unobvious in view of the prior art. Therefore, applicants respectfully request that all of claims 1-14 be found allowable, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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